WORKING FOR PEANUTS

North Carolina plant turns farming into a sweet business

Lee Swinson is a peanut farmer in eastern North Carolina and sells the Carolina/Virginia-style peanuts grown on his farm to wholesalers around the world. When he was just 5 years old, Swinson started helping his dad in the tobacco fields. Then, in 1994, at the age of 12, this young farmer rented 20 acres where he could grow cotton. Over the years, he increased his acreage and experimented with various crops. In 2005, he found his niche: growing peanuts.

He found that there was some demand for fresh, raw peanuts. As the field crew harvested the crop, people would stop and ask to buy a bucket of peanuts from the harvest wagon. He started selling by the bucket for $5 each. To meet the demand, he purchased 5-lb bags and set up a roadside stand. Business was steady but not a large enough outlet for the volume of peanuts he was growing — up to 10,000 tons.

In 2007, when he purchased the Mt. Olive Candy assets, Swinson founded Golden Grove (www.goldengrove.com). The move toward value-added product lines led to three distinct peanut products: peanut candy, packaged salted in-shell peanuts, and bulk raw in-shell peanuts.

Swinson created a convenient, affordable line of sweet treats that generate a higher return for the business. Pound for pound, candy products represent a nearly 400% increase in value compared to raw peanuts. From the field, the peanuts must be harvested, shelled, and roasted. They're then combined with sugar and corn syrup to produce a variety of peanut-based candy, including the Carolina Crisp Peanut Bar, Carolina Crisp Bites, and Peanut Brittle.

At the same time, Swinson built a wholesale business to market the majority of the annual 10,000-ton harvest by providing raw in-shell peanuts. Golden Grove peanuts are harvested, packed in 900-lb bulk bags, and shipped to customers around the world. As the wholesale business grew, he saw clear opportunities to improve efficiency.

Golden Grove employees were filling 20 bulk bags each day by hand. They had three filling stations set up in the warehouse, each containing a hopper filled with in-shell peanuts. A slide gate was installed at the bottom of each hopper, and a scale was positioned below. Each filling station was manned by three workers who would place an empty bulk bag on the scale and beneath the hopper. An operator would open the slide gate, allowing the peanuts to fall into the bulk bag and wait until the bag was within 2 lb of the target 900-lb weight.

As the wholesale business grew Swinson recognized that the manual filling process in place didn't meet his efficiency standards. The process was extremely slow, with a top filling rate of 20 bulk bags per day and labor-intensive, with nine employees working full-time. In addition, weighing accuracies of +/- 2 lb could be improved to increase profitability.

The manual filling process also generated some spillage and possible product contamination. If the bag spout wasn't

held firmly beneath the slide gate, peanuts fell on the floor and had to be swept up daily and thrown away. Swinson learned that his employees were easily bored with the tedious process and would sometimes look at their cell phones during filling. They had occasions in which cell phones and other items were dropped into the bulk bag with the peanuts, contaminating the entire bag.

Swinson needed a significantly faster filling system to meet the growing wholesale demand. The company turned to Spiroflow Systems (www.spiroflowsystems.com), which recommended an automated gain-in-weight filling system using the C1-2 bulk bag filler with a control panel.

"Our local representative, CW Garner, informed me that Golden Grove was interested in purchasing a bulk bag filler for his Warsaw, North Carolina, operation," explains Mathias Lee, vice president of sales and marketing at Spiroflow Systems. "CW and I had a few brief conversations regarding Lee's process. I prepared a proposal, and CW and I visited with Lee the same week. Before we departed Golden Grove that same day, Lee signed the quote and ordered the first unit. The other units followed quickly — within a year — once the first unit was performance-proven."

Golden Grove initially purchased one C1-2 bulk bag filler with a control panel, and the equipment worked so well that the company purchased two more identical systems. The filling stations were set up as follows:

- A large elevator conveyor is installed behind each hopper to continually deliver salted in-shell peanuts to a hopper.
- The bottom of each hopper is fitted with a 10-in. slide gate valve operated by the control panel.

- Spiroflow Systems C1-2 bulk bag fillers are installed under each hopper.
- The bulk bag fillers are designed to fill customer-specified 40-in. square bulk bags. The filler height can be adjusted to accommodate bags that are 50-to-64-in. tall with corner loops 8-to-10-in. long.
- All product contact parts on the fillers are constructed from 304 stainless steel to meet food safety standards.
- A flexible connection is installed between the filling head of each bulk bag filler and the base of each hopper. Flexible connections are strongly recommended in a weighing application as rigid connections would interfere with accurate weighing.
- A flexible connection is installed between the bag inflation fan and the filling head of each bulk bag filler.
- Load cells on the bulk bag filler are connected to a Spiroflow Systems NEMA 4-certified control panel with digital weigh batch controls, slide gate valve position control, and bag inflation blower fan.

With the installation of three Spiroflow C1-2 bulk bag fillers with gain-in-weight controls, Golden Grove now has a single operator assigned to the filling area, and the company fills 300 bulk bags per day.

Golden Grove has increased productivity by reducing the number of operators from nine to one. Weighing accuracy has increased by more than 400%, and product spillage was reduced. The automated filling system has eliminated operator contact with the product, mitigating contamination risk.